GenCore version 4.5

OM protein - protein search, using sw model

Run on: July 16, 2001, 18:12:47 ; Search time 37.19 Seconds
(without alignments)
1048.164 Million cell updates/sec

Title: US-09-405-504A-53
Perfect score: 3384
Sequence: 1 MLLGASLVGVLLFSKLVLKL.....RYVPLDQEAYSRIQAGEEKL 643

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 412676 seqs, 60623988 residues

Total number of hits satisfying chosen parameters: 412676

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_0601:*
1: /SIDS8/gcgdata/geneseq/geneseqp/AA1980.DAT:*
2: /SIDS8/gcgdata/geneseq/geneseqp/AA1981.DAT:*
3: /SIDS8/gcgdata/geneseq/geneseqp/AA1982.DAT:*
4: /SIDS8/gcgdata/geneseq/geneseqp/AA1983.DAT:*
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19: /SIDS8/gcgdata/geneseq/geneseqp/AA1998.DAT:*
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21: /SIDS8/gcgdata/geneseq/geneseqp/AA2000.DAT:*
22: /SIDS8/gcgdata/geneseq/geneseqp/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	3384	100.0	643	20	AAY14943	Amino acid sequenc
2	3384	100.0	643	20	AAY14949	Amino acid sequenc
3	3110	91.9	643	20	AAY14945	Amino acid sequenc
4	3110	91.9	643	20	AAY14958	Amino acid sequenc
5	3054.5	90.3	616	21	AAB42756	Human ORFX ORF2520
6	2708	80.0	511	21	AAY71058	Human membrane tra
7	2433	71.9	506	20	AAY14934	Amino acid sequenc
8	2119	62.6	646	20	AAY14942	Amino acid sequenc
9	2119	62.6	646	20	AAY14946	Amino acid sequenc
10	2114	62.5	646	20	AAY40435	Human FATP protein
11	2114	62.5	646	20	AAY40436	Human FATP1 protei
12	2087	61.7	646	20	AAY14952	Amino acid sequenc
13	2080.5	61.5	647	20	AAY14955	Amino acid sequenc
14	2036	60.2	405	20	AAY14954	Amino acid sequenc
15	1441.5	42.6	590	20	AAY14960	Partial amino acid
16	1292	38.2	650	20	AAY14962	Amino acid sequenc
17	1136	33.6	213	20	AAY14938	Amino acid sequenc
18	1122	33.2	619	20	AAY14944	Amino acid sequenc
19	1122	33.2	619	20	AAY14951	Amino acid sequenc
20	1111	32.8	615	20	AAY14963	Amino acid sequenc
21	1064	31.4	620	20	AAY14947	Amino acid sequenc
22	1057.5	31.2	730	20	AAY41699	Human PRO703 prote
23	1057.5	31.2	730	21	AAB44255	Human PRO703 (UNQ3
24	1057.5	31.2	730	21	AAB24054	Human PRO703 prote
25	1057.5	31.2	730	22	AAB60388	Human fatty acid t
26	1057	31.2	702	20	AAY14969	Amino acid sequenc
27	1053.5	31.1	609	20	AAY14957	Amino acid sequenc
28	1053.5	31.1	613	20	AAY14933	Amino acid sequenc
29	1044	30.9	620	20	AAY14953	Amino acid sequenc
30	987.5	29.2	690	21	AAB42907	Human ORFX ORF2671
31	960	28.4	662	20	AAY14935	Amino acid sequenc
32	960	28.4	689	20	AAY14959	Amino acid sequenc
33	886.5	26.2	597	20	AAY14968	Amino acid sequenc
34	886.5	26.2	597	20	AAY14941	Amino acid sequenc
35	872.5	25.8	623	20	AAY14956	Amino acid sequenc
36	844	24.9	642	15	AAR49826	Cephalosporin C #1
37	801	23.7	643	20	AAY14964	Amino acid sequenc
38	774.5	22.9	330	20	AAY14948	Amino acid sequenc
39	714	21.1	623	20	AAY14967	Amino acid sequenc
40	705	20.8	335	20	AAY14940	Amino acid sequenc
41	679.5	20.1	354	20	AAY14950	Amino acid sequenc
42	663.5	19.6	286	20	AAY14936	Amino acid sequenc
43	421.5	12.5	191	20	AAY14937	Amino acid sequenc
44	389	11.5	199	20	AAY14939	Amino acid sequenc
45	306.5	9.1	525	20	AAW99453	B.diminuta pimelyl

ALIGNMENTS

RESULT 1
AAY14943
ID AAY14943 standard; Protein; 643 AA.
XX
AC AAY14943;
XX
DT 31-MAY-2000 (first entry)
XX
DE Amino acid sequence of human hFATP4.
XX
KW Fatty acid transport protein; FATP; long chain fatty acid; LCFA;
KW fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS Homo sapiens.
XX
PN WO9936537-A2.
XX
PD 22-JUL-1999.
XX
PF 14-JAN-1999; 99WO-US00182.
XX
PR 14-JAN-1999; 99US-0232201.
PR 15-JAN-1998; 98US-0071374.
PR 20-JUL-1998; 98US-0093491.
PR 04-DEC-1998; 98US-0110941.
PR 14-JAN-1999; 99US-0232195.
PR 14-JAN-1999; 99US-0232197.
PR 14-JAN-1999; 99US-0232200.
XX
PA (MILL-) MILLENNIUM PHARM INC.
PA (WHED) WHITEHEAD INST BIOMEDICAL RES.
XX
PI Gimeno RE, Hirsch DJ, Lodish HF, Stahl A, Tartaglia LA;
XX

```
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00353.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Examples; Fig 27; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   643 AA;

  Query Match             100.0%;  Score 3384;  DB 20;  Length 643;
  Best Local Similarity   100.0%;  Pred. No. 0;
  Matches  643;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MLLGASLVGVLLFSKLVLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLL 60
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Db       1 mllgaslvgvllfsklvlklpwtqvgfsllflylgsggwrfirvfiktirrdifgglvll 60

Qy      61 KVKAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQA 120
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Db      61 kvkakvrqclqerrtvpilfastvrrhpdktalifegtdthwtfrqldeysssvanflqa 120

Qy     121 RGLASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFG 180
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Db     121 rglasgdvaaifmenrnefvglwlgmaklgveaalintnlrrdallhclttsraralvfg 180

Qy     181 SEMASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDK 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 semasaicevhasldpslslfcsgswepgavppstehldpllkdapkhlpscpdkgftdk 240

Qy     241 LFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQ 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 lfyiytsgttglpkaaivvhsryyrmaalvyygfrmrpndivydclplyhsagnivgigq 300

Qy     301 CLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALG 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 cllhgmtvvirkkfsasrfwddcikyncTivqyigelcryllnqpprеaenqhqvrmalg 360

Qy     361 NGLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVR 420
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Db     361 nglrqsiwtnfssrfhipqvaefygatecncslgnfdsqvgacgfnsrilsfvypirlvr 420

Qy     421 VNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKK 480
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 vnedtmelirgpdgvcipcqpgepgqlvgriiqkdplrrfdgylnqgannkkiakdvfkk 480

Qy     481 GDQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVE 540
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Qy     541 VPGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTE 600
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Db     541 vpgtegragmaavasptgncdlerfaqvlekelplyarpiflrllpelhktgtykfqkte 600

Qy     601 LRKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
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Db     601 lrkegfdpaivkdplfyldaqkgryvpldqeaysriqageekl 643


RESULT   2
AAY14949
ID   AAY14949 standard; protein; 643 AA.
XX
AC   AAY14949;
XX
DT   26-OCT-1999  (first entry)
XX
DE   Amino acid sequence of human hsFATP4.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA; human;
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Homo sapiens.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00359.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Claim 73; Fig 51; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   643 AA;

  Query Match             100.0%;  Score 3384;  DB 20;  Length 643;
  Best Local Similarity   100.0%;  Pred. No. 0;
  Matches  643;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Qy    181 SEMASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDK 240
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Qy    241 LFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQ 300
Db    241 lfyiytsgttglpkaaivvhsryyrmaalvyygfrmrpndivydclplyhsagnivgigq 300

Qy    301 CLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALG 360
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Qy    421 VNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKK 480
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Qy    541 VPGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTE 600
Db    541 vpgtegragmaavasptgncdlerfaqvlekelplyarpiflrllpelhktgtykfqkte 600

Qy    601 LRKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
Db    601 lrkegfdpaivkdplfyldaqkgryvpldqeaysriqageekl 643
```

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RESULT   3
AAY14945
ID   AAY14945 standard; protein; 643 AA.
XX
AC   AAY14945;
XX
DT   26-OCT-1999  (first entry)
XX
DE   Amino acid sequence of mouse FATP4.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA; murine;
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Mus sp.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00355.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Example 1; Fig 43B; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   643 AA;
```

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  Query Match           91.9%;  Score 3110;  DB 20;  Length 643;
  Best Local Similarity 91.0%;  Pred. No. 0;
  Matches  585;  Conservative   31;  Mismatches   27;  Indels    0;  Gaps    0;

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Db      1 mllgaslvgallfsklvlklpwtqvgfslllylgsggwrfirvfiktvrrdifggmvll 60

Qy     61 KVKAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQA 120
Db     61 kvktkvrrylqerktvpllfasmvqrhpdktalifegtdthwtfrqldeysssvanflqa 120

Qy    121 RGLASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFG 180
Db    121 rglasgnvvalfmenrnefvglwlgmaklgveaalintnlrrdalrhcldtskaralifg 180

Qy    181 SEMASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDK 240
Db    181 semasaiceihasleptlslfcsgswepstvpvstehldplledapkhlpshpdkgftdk 240

Qy    241 LFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQ 300
Db    241 lfyiytsgttglpkaaivvhsryyrmaslvyygfrmrpddivydclplyhssrkhrgdwq 300

Qy    301 CLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALG 360
Db    301 cllhgmtvvirkkfsasrfwddcikynctvvqyigelcryllnqppreaesrhkvrmalg 360

Qy    361 NGLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVR 420
Db    361 nglrqsiwtdfssrfhipqvaefygatecncslgnfdsrvgacgfnsrilsfvypirlvr 420

Qy    421 VNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKK 480
Db    421 vnedtmelirgpdgvcipcqpgqpgqlvgriiqqdplrrfdgylnqgannkkiandvfkk 480

Qy    481 GDQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVE 540
Db    481 gdqayltgdvlvmdelgylyfrdrtgdtfrwkgenvsttevegtlsrllhmadvavygve 540
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Qy     541 VPGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTE 600
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Db     541 vpgtegragmaavaspisncdlesfaqtlkkelplyarpiflrflpelhktgtfkfqkte 600

Qy     601 LRKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
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Db     601 lrkegfdpsvvkdplfyldarkgcyvaldqeaytriqageekl 643
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RESULT 4
AAY14958
ID AAY14958 standard; protein; 643 AA.
XX
AC AAY14958;
XX
DT 26-OCT-1999 (first entry)
XX
DE Amino acid sequence of murine mmFATP4.
XX
KW Fatty acid transport protein; FATP; long chain fatty acid; LCFA; murine;
KW fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS Mus sp.
XX
PN WO9936537-A2.
XX
PD 22-JUL-1999.
XX
PF 14-JAN-1999; 99WO-US00182.
XX
PR 14-JAN-1999; 99US-0232201.
PR 15-JAN-1998; 98US-0071374.
PR 20-JUL-1998; 98US-0093491.
PR 04-DEC-1998; 98US-0110941.
PR 14-JAN-1999; 99US-0232195.
PR 14-JAN-1999; 99US-0232197.
PR 14-JAN-1999; 99US-0232200.
XX
PA (MILL-) MILLENNIUM PHARM INC.
PA (WHED) WHITEHEAD INST BIOMEDICAL RES.
XX
PI Gimeno RE, Hirsch DJ, Lodish HF, Stahl A, Tartaglia LA;
XX
DR WPI; 1999-444398/37.
DR N-PSDB; AAZ00368.
XX
PT Fatty acid transport proteins and related polynucleotides, useful
PT for treating obesity, diabetes and heart disease
XX
PS Example 1; Fig 69; 255pp; English.
XX
CC The invention provides a family of fatty acid transport proteins (FATPs)
CC that mediate transport of long chain fatty acids (LCFAs) across cell
CC membranes into cells. Human and murine FATP proteins and nucleic acids
CC encoding the proteins are provided. The FATP proteins can be produced
CC by standard recombinant methodology. Fatty acid uptake by cells can be
CC modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC In particular, antisense oligonucleotides can be used to modulate FATP
CC biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC muscle or liver by administration of a complex of the agent and a FATP6
CC binding moiety. DNA encoding FATP proteins can be used as a reference
CC used in detecting variant alleles or homologues. Altering the LCFA uptake
CC by administering an inhibitor or enhancer of FATP transport function in
CC the small intestine can decrease or increase calories available as fats,
CC and can decrease or increase circulating fatty acids. Blocking the
CC function of FATP4 and also FATP2, is useful for treating obesity,
CC diabetes and heart disease.
XX
SQ Sequence 643 AA;

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  Query Match             91.9%;  Score 3110;  DB 20;  Length 643;
  Best Local Similarity   91.0%;  Pred. No. 0;
  Matches  585;  Conservative   31;  Mismatches   27;  Indels    0;  Gaps    0;

Qy       1 MLLGASLVGVLLFSKLVLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLL 60
           |||||||| |||||||||||||||||| |||||||||||||||:|||||||:|||
Db       1 mllgaslvgallfsklvlklpwtqvgfslllylgsggwrfirvfiktvrrdifggmvll 60

Qy      61 KVKAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQA 120
           ||| |||: |||||:|||:|||| |:|||||||||||||||||||||||||||||||||
Db      61 kvktkvrrylqerktvpllfasmvqrhpdktalifegtdthwtfrqldeysssvanflqa 120

Qy     121 RGLASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFG 180
           ||||||:| |:|||||||||||||||||||||||||||||| ||| ||:||||:||
Db     121 rglasgnvvalfmenrnefvglwlgmaklgveaalintnlrrdalrhcldtskaralifg 180

Qy     181 SEMASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDK 240
           |||||||||:||||:|:|||||||||||  || |||||||||:|||||||| ||||||||
Db     181 semasaiceihasleptlslfcsgswepstvpvstehldplledapkhlpshpdkgftdk 240

Qy     241 LFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQ 300
           |||||||||||||||||||||||||||:||||||||:|||||||||||:    | | |
Db     241 lfyiytsgttglpkaaivvhsryyrmaslvyygfrmrpddivydclplyhssrkhrgdwq 300

Qy     301 CLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALG 360
           |||||||||||||||||||||||||||:|||||||||||||||||||::|:||||||
Db     301 cllhgmtvvirkkfsasrfwddcikynctvvqyigelcryllnqppreaesrhkvrmalg 360

Qy     361 NGLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVR 420
           |||||||||:|||||||||||||||||||||||||||||:|||||||||||||||||||
Db     361 nglrqsiwtdfssrfhipqvaefygatecncslgnfdsrvgacgfnsrilsfvypirlvr 420

Qy     421 VNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKK 480
           |||||||||||||||||||||:|||||||||:|||||||||||||||||||||||| |||||
Db     421 vnedtmelirgpdgvcipcqpgqpgqlvgriiqqdplrrfdgylnqgannkkiandvfkk 480

Qy     481 GDQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVE 540
           |||||||||||||||||||||||||||||||||||||||||||||||| ||||||||||
Db     481 gdqayltgdvlvmdelgylyfrdrtgdtfrwkgenvsttevegtlsrllhmadvavygve 540

Qy     541 VPGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTE 600
           ||||||||||||||  ||||| ||| |:|||||||||||||| |||||||||:||||||
Db     541 vpgtegragmaavaspisncdlesfaqtlkkelplyarpiflrflpelhktgtfkfqkte 600

Qy     601 LRKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
           ||||||||::|||||||||||:|| || ||||||:|||||||||
Db     601 lrkegfdpsvvkdplfyldarkgcyvaldqeaytriqageekl 643
```

RESULT 5
AAB42756
ID AAB42756 standard; Protein; 616 AA.
XX
AC AAB42756;
XX
DT 08-FEB-2001 (first entry)
XX
DE Human ORFX ORF2520 polypeptide sequence SEQ ID NO:5040.
XX
KW Human; open reading frame; ORFX; detection; cytostatic; hepatotropic;
KW vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective;
KW anticonvulsant; osteopathic; antiarthritic; immunosuppressant; cardiant;
KW immunostimulant; thrombolytic; coagulant; vasotropic; antidiabetic;
KW hypotensive; dermatological; immunosuppressive; antiinflammatory;
KW antiviral; antibacterial; antifungal; antirheumatic; antithyroid;
KW antianaemic; gene therapy; cancer; proliferative disorder; hypertension;
KW neurodegenerative disorder; osteoarthritis; graft vs host disease;
KW cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; AIDS;
KW cholesterol ester storage; systemic lupus erythematosus; infection;
KW severe combined immunodeficiency; malaria; autoimmune disorder; asthma;
KW allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound;
KW bone damage; cartilage damage; antiinflammatory disease; coagulation;
KW thrombosis; contraceptive.

```
XX
OS   Homo sapiens.
XX
PN   WO200058473-A2.
XX
PD   05-OCT-2000.
XX
PF   31-MAR-2000; 2000WO-US08621.
XX
PR   31-MAR-1999;   99US-0127607.
PR   02-APR-1999;   99US-0127636.
PR   05-APR-1999;   99US-0127728.
PR   30-MAR-2000; 2000US-0540763.
XX
PA   (CURA-) CURAGEN CORP.
XX
PI   Shimkets RA,  Leach M;
XX
DR   WPI; 2000-602362/57.
DR   N-PSDB; AAC76965.
XX
PT   Novel nucleic acids and peptides derived from open reading frame X,
PT   useful for treating e.g. cancers, proliferative disorders,
PT   neurodegenerative disorders and cardiovascular disease -
XX
PS   Claim 11; Page 4222-4224; 5507pp; English.
XX
CC   AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397,
CC   which represent the human ORFX open reading frames 1 to 3161. The ORFX
CC   sequences have activities such as: cytostatic; hepatotropic; vulnerary;
CC   antipsoriatic; antiparkinsonian; nootropic; neuroprotective;
CC   osteopathic; anticonvulsant; antiarthritic; immunosuppressant;
CC   immunostimulant; cardiant; thrombolytic; coagulant; vasotropic;
CC   antidiabetic; hypotensive; dermatological; immunosuppressive;
CC   antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic;
CC   antithyroid; and antianaemic. The sequences can be used for determining
CC   the presence of or predisposition to, or preventing or treating
CC   pathological conditions associated with an ORFX-associated disorder. The
CC   nucleic acids can be used to express ORFX proteins in gene therapy
CC   vectors. The proteins and nucleic acids may be used to treat cancers,
CC   proliferative disorders, neurodegenerative disorders, osteoarthritis,
CC   graft vs host disease, cardiovascular disease, diabetes mellitus,
CC   hypertension, hypothyroidism, cholesterol ester storage, systemic lupus
CC   erythematosus, severe combined immunodeficiency (SCID), AIDS, viral,
CC   bacterial or fungal infection, malaria, autoimmune disorders, asthma,
CC   allergies, aplastic anaemia, burns, wounds, bone and cartilage damage,
CC   nocturnal haemoglobinuria, antiinflammatory disease; to enhance
CC   coagulation; to inhibit thrombosis; and as a contraceptive.
XX
SQ   Sequence   616 AA;

  Query Match             90.3%;  Score 3054.5;  DB 21;  Length 616;
  Best Local Similarity   95.9%;  Pred. No. 0;
  Matches  587;  Conservative    2;  Mismatches   22;  Indels    1;  Gaps    1;

Qy       1 MLLGASLVGVLLFSKLVLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLL 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 mllgaslvgvllfsklvlklpwtqvgfsllflylgsggwrfirvfiktirrdifgglvll 60

Qy      61 KVKAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQA 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 kvkakvrqclqerrtvpilfastvrrhpdktalifegtdthwtfrqldeysssvanflqa 120

Qy     121 RGLASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFG 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 rglasgdvaaifmenrnefvglwlgmaklgveaalintnlrrdallhclttsraralvfg 180

Qy     181 SEMASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDK 240
           |||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||
Db     181 semasaicevhaspdpslslfcsgswepgavppstehldpllkdapkhlpscpdkgftdk 240

Qy     241 LFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQ 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 lfyiytsgttglpkaaivvhsryyrmaalvyygfrmrpndivydclplyhsagnivgigq 300

Qy     301 CLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALG 360
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Db     301 cllhgmtvvirkkfsasrfwddcikynctivqyigelcryllnqppreaenqhqvrmalg 360

Qy     361 NGLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVR 420
           |          | :    |:      |  ||||||||||||||||||||||||||||||||
Db     361 nasgspsgptfpaastyprwlsstg-pecncslgnfdsqvgacgfnsrilsfvypirlvr 419

Qy     421 VNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKK 480
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     420 vnedtmelirgpdgvcipcqpgepgqlvgriiqkdplrrfdgylnqgannkkiakdvfkk 479

Qy     481 GDQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVE 540
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     480 gdqayltgdvlvmdelgylyfrdrtgdtfrwkgenvsttevegtlsrlldmadvavygve 539

Qy     541 VPGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTE 600
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     540 vpgtegragmaavasptgncdlerfaqvlekelplyarpiflrllpelhktgtykfqkte 599

Qy     601 LRKEGFDPAIVK 612
           |||| |||||||
Db     600 lrkeafdpaivk 611


RESULT   6
AAY71058
ID   AAY71058 standard; Protein; 511 AA.
XX
AC   AAY71058;
XX
DT   29-AUG-2000  (first entry)
XX
DE   Human membrane transport protein, MTRP-3.
XX
KW   Human; membrane transport protein; MTRP-3; antiinflammatory; cytostatic;
KW   antithyroid; immunosuppressive; thyromimetic; antidiabetic; nootropic;
KW   antidiarrheic; neuroprotective; antidepressant; nephrotropic; virucide;
KW   antihelminthic; protozoacide; antibacterial; neuroleptic; antigout;
KW   diagnosis; prevention; treatment; membrane transport disorder; epilepsy;
KW   Menkes disease; diabetes; Parkinson's disease; neurological disorder;
KW   Alzheimer's disease; depression; schizophrenia; immune disorder; allergy;
KW   inflammatory disorder; AIDS; Addison's disease; atherosclerosis; gout;
KW   Graves disease; Hashimoto's thyroiditis; microbial infection; cancer;
KW   cell proliferative disorder.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   39
FT                   /note= "Phosphorylation site"
FT   Modified-site   99
FT                   /note= "Phosphorylation site"
FT   Modified-site   106
FT                   /note= "Phosphorylation site"
FT   Modified-site   111
FT                   /note= "Phosphorylation site"
FT   Modified-site   151
FT                   /note= "Phosphorylation site"
FT   Modified-site   183
FT                   /note= "Phosphorylation site"
FT   Modified-site   194
FT                   /note= "Phosphorylation site"
FT   Modified-site   240
FT                   /note= "Phosphorylation site"
FT   Modified-site   353
FT                   /note= "Phosphorylation site"
FT   Modified-site   376
FT                   /note= "Phosphorylation site"
FT   Modified-site   385
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FT                   /note= "Phosphorylation site"
FT   Modified-site   387
FT                   /note= "Phosphorylation site"
FT   Modified-site   461
FT                   /note= "Phosphorylation site"
FT   Modified-site   195
FT                   /note= "N-glycosylation site"
FT   Modified-site   238
FT                   /note= "N-glycosylation site"
FT   Modified-site   258
FT                   /note= "N-glycosylation site"
FT   Modified-site   383
FT                   /note= "N-glycosylation site"
FT   Region          2..14
FT                   /note= "Lipocalin signature sequence"
FT   Binding-site    4..404
FT                   /label= AMP-binding_enzyme_motif
FT   Binding-site    91..144
FT                   /label= AMP-binding_domain
FT                   /note= "Signature sequence"
XX
PN   WO200026245-A2.
XX
PD   11-MAY-2000.
XX
PF   04-NOV-1999;   99WO-US26048.
XX
PR   04-NOV-1998;   98US-0172255.
PR   24-NOV-1998;   98US-0172252.
PR   22-DEC-1998;   98US-0172214.
PR   26-FEB-1999;   99US-0121896.
XX
PA   (INCY-) INCYTE PHARM INC.
XX
PI   Hillman JL,  Yue H,  Tang YT,  Lal P,  Corley NC,  Guegler KJ;
PI   Baughn MR,  Azimzai Y,  Lu DAM;
XX
DR   WPI; 2000-365576/31.
DR   N-PSDB; AAD00602.
XX
PT   Novel human membrane transport proteins useful for diagnosis,
PT   prevention and treatment of membrane transport disorders,
PT   immune/inflammatory disorders and cell proliferative disorders
PT   including cancer  -
XX
PS   Claim 1; Page 93-94; 136pp; English.
XX
CC   The present sequence is a membrane transport protein,
CC   MTRP-3 from Incyte clone 1720440 isolated from human BLADNOT06 cDNA
CC   library. MTRP-3 shows homology to human and mouse fatty acid
CC   transport proteins and is expressed
CC   in reproductive, nervous and gastrointestinal tissues.
CC   The present sequence is useful in diagnosis, prevention and treatment
CC   of disorders related with increased or decreased expression of MTRP
CC   such as familial goitre, Menkes disease, diabetes, Parkinson's disease,
CC   neurological disorders such as Alzheimer's disease, depression, epilepsy,
CC   schizophrenia, immune/inflammatory disorders such as AIDS, Addison's
CC   disease, allergies, atherosclerosis, Graves disease, gout, Hashimoto's
CC   thyroiditis, viral, bacterial, fungal, parasitic, protozoal or
CC   helminthic infections and cell proliferative disorders such as cancer.
CC   Fragments of MTRP polynucleotides are useful as targets in microarrays.
CC   MTRP DNA is also useful for generating hybridisation probes useful in
CC   mapping genomic sequences and detecting differences in sequences among
CC   normal, carrier and affected individuals. It is also used for
CC   screening libraries of compounds in drug screening techniques.
XX
SQ   Sequence   511 AA;


  Query Match           80.0%;  Score 2708;  DB 21;  Length 511;
  Best Local Similarity   99.8%;  Pred. No. 1.4e-272;
  Matches  510;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy    133 MENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSEMASAICEVHA 192
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      1 menrnefvglwlgmaklgveaalintnlrrdallhclttsraralvfgsemasaicevha 60

Qy    193 SLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDKLFYIYTSGTTGL 252
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     61 sldpslslfcsgswepgavppstehldpllkdapkhlpscpdkgftdklfyiytsgttgl 120

Qy    253 PKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQCLLHGMTVVIRK 312
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    121 pkaaivvhsryyrmaalvyygfrmrpndivydclplyhsagnivgigqcllhgmtvvirk 180

Qy    313 KFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGNGLRQSIWTNFS 372
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    181 kfsasrfwddcikynctivqyigelcryllnqppreaenqhqvrmalgnglrqsiwtnfs 240

Qy    373 SRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRVNEDTMELIRGP 432
          |||||||||||||||||||||||||||||||||| ||||||||||||||||||||||||
Db    241 srfhipqvaefygatecncslgnfdsqvgacgfnsrilssvypirlvrvnedtmelirgp 300

Qy    433 DGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKGDQAYLTGDVLV 492
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    301 dgvcipcqpgepgqlvgriiqkdplrrfdgylnqgannkkiakdvfkkgdqayltgdvlv 360

Qy    493 MDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEVPGTEGRAGMAA 552
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    361 mdelgylyfrdrtgdtfrwkgenvsttevegtlsrlldmadvavygvevpgtegragmaa 420

Qy    553 VASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTELRKEGFDPAIVK 612
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    421 vasptgncdlerfaqvlekelplyarpiflrllpelhktgtykfqktelrkegfdpaivk 480

Qy    613 DPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
          |||||||||||||||||||||||||||||||
Db    481 dplfyldaqkgryvpldqeaysriqageekl 511


RESULT   7
AAY14934
ID   AAY14934 standard; protein; 506 AA.
XX
AC   AAY14934;
XX
DT   26-OCT-1999  (first entry)
XX
DE   Amino acid sequence of murine mmFATP4.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA; murine;
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Mus musculus.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00344.
```

```
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Example 1; Fig 11; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   506 AA;


  Query Match             71.9%;  Score 2433;  DB 20;  Length 506;
  Best Local Similarity   91.2%;  Pred. No. 5.8e-244;
  Matches  455;  Conservative   23;  Mismatches   21;  Indels    0;  Gaps    0;

Qy     145 GMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSEMASAICEVHASLDPSLSLFCSG 204
           ||||||||||||||||||||| ||| ||:||||:|||||||||||:||||:|:|||||||
Db       8 gmaklgveaalintnlrrdalrhcldtskaralifgsemasaiceihasleptlslfcsg 67

Qy     205 SWEPGAVPPSTEHLDPLLKDAPKHLPSCPDKGFTDKLFYIYTSGTTGLPKAAIVVHSRYY 264
           ||||  || |||||||||:|||||||| ||||||||||||||||||||||||||||||||
Db      68 swepstvpvstehldplledapkhlpshpdkgftdklfyiytsgttglpkaaivvhsryy 127

Qy     265 RMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQCLLHGMTVVIRKKFSASRFWDDCI 324
           |||:||||||||||:||||||||||||:    | ||||||||||||||||||||||||||
Db     128 rmaslvyygfrmrpddivydclplyhssrkhrgdwqcllhgmtvvirkkfsasrfwddci 187

Qy     325 KYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGNGLRQSIWTNFSSRFHIPQVAEFY 384
           |||||:||||||||||||||||||::|:||||||||||||||:|||||||||||||||||
Db     188 kynctvvqyigelcryllnqppreaesrhkvrmalgnglrqsiwtdfssrfhipqvaefy 247

Qy     385 GATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRVNEDTMELIRGPDGVCIPCQPGEP 444
           ||||||||||||:|||||||||||||||||||||||||||||||||||||||||||||:|
Db     248 gatecncslgnfdsrvgacgfnsrilsfvypirlvrvnedtmelirgpdgvcipcqpgqp 307

Qy     445 GQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKGDQAYLTGDVLVMDELGYLYFRDR 504
           |||||||||:|||||||||||||||||| ||||||||||||||||||||||||||||||
Db     308 gqlvgriiqqdplrrfdgylnqgannkkiandvfkkgdqayltgdvlvmdelgylyfrdr 367

Qy     505 TGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEVPGTEGRAGMAAVASPTGNCDLER 564
           |||||||||||||||||||||||| ||||||||||||||||||||||||||  |||||
Db     368 tgdtfrwkgenvsttevegtlsrllhmadvavygvevpgtegragmaavaspisncdles 427

Qy     565 FAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTELRKEGFDPAIVKDPLFYLDAQKGR 624
           ||| |:|||||||||||| ||||||||:|||||||||||||::||||||||||:||
Db     428 faqtlkkelplyarpiflrflpelhktgtfkfqktelrkegfdpsvvkdplfyldarkgc 487

Qy     625 YVPLDQEAYSRIQAGEEKL 643
           || ||||||:|||||||||
Db     488 yvaldqeaytriqageekl 506


RESULT   8
AAY14942
ID   AAY14942 standard; Protein; 646 AA.
XX
AC   AAY14942;
XX
DT   31-MAY-2000  (first entry)
XX
DE   Amino acid sequence of human hFATP1.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA;
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Homo sapiens.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00352.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Examples; Fig 26; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   646 AA;


  Query Match             62.6%;  Score 2119;  DB 20;  Length 646;
  Best Local Similarity   62.4%;  Pred. No. 4e-211;
  Matches  398;  Conservative   91;  Mismatches  147;  Indels    2;  Gaps    2;

Qy       4 GASLVGVLLFSKL-VLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLLKV 62
             ||    |:  : | :| ||||    : | :|:|||||||:|:  || |||:||  ||::|
Db       5 gagaasvvslallwllglpwtwsaaaalgvyvgsggwrflrivcktarrdlfglsvlirv 64

Qy      63 KAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQARG 122
           : ::|:  :   |:| :| : |:| |:: ||:  ||   ||| ||| ||::|||  :  |
Db      65 rlelrrhqraghtiprifqavvqrqperlalvdagtgecwtfaqldaysnavanlfrqlg 124

Qy     123 LASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSE 182
           | ||| |||:| | |||||||||:|| |:||||:| ||||: |  || || |:||:|| |
Db     125 fapgdvvaiflegrpefvglwlglakagmeaallnvnlrreplafclgtsgakalifgge 184
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Qy    183 MASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDA-PKHLPSCPDKGFTDKL 241
          | :|: ||   |  ||  ||||   |  : | |  ||||||:|    |   | ||  |:|
Db    185 mvaavaevsghlgkslikfcsgdlgpegilpdthlldpllkeastaplaqipskgmddrl 244

Qy    242 FYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQC 301
          ||||||||||||||||||||||||||||  :: :||:  |::|||||||||||||:|:|||
Db    245 fyiytsgttglpkaaivvhsryyrmaafghhayrmqaadvlydclplyhsagniigvgqc 304

Qy    302 LLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGN 361
          |::|:|||:|||||||||||||||||||:||||||:||||| || |||| :|:||:|:||
Db    305 liygltvvlrkkfsasrfwddcikynctvvqyigeicryllkqpvreaerrhrvrlavgn 364

Qy    362 GLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRV 421
          ||| :||  |: || : |: |||||||||||: | | :||:|||||||| |||||||:|
Db    365 glrpaiweefterfgvrqigefygatecncsianmdgkvgscgfnsrilphvypirlvkv 424

Qy    422 NEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKG 481
          |||||||:|   |:|||| |||| |||:| |:||||||||::: | :|||| || ||
Db    425 nedtmellrdaqglcipcqagepgllvgqinqqdplrrfdgyvsesatskkiahsvfskg 484

Qy    482 DQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEV 541
          | |||:||||||||||:|||||:||||||:|||||||||| |||||   ||||||| |
Db    485 dsaylsgdvlvmdelgymyfrdrsgdtfrwrgenvsttevegvlsrllgqtdvavygvav 544

Qy    542 PGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTEL 601
          || ||:|||||| |    |     | |:| |  |||||||||||::  |||:| ||| |
Db    545 pgvegkagmaavadphslldpnaiyqelqkvlapyarpiflrllpqvdttgtfkiqktrl 604

Qy    602 RKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAG 639
          ::|||||    | ||:|| ::| |:||::  |:|| :|
Db    605 qregfdprqtsdrlffldlkqghylplneavytricsg 642
```

RESULT 9
AAY14946
ID AAY14946 standard; protein; 646 AA.
XX
AC AAY14946;
XX
DT 26-OCT-1999 (first entry)
XX
DE Amino acid sequence of human hsFATP1.
XX
KW Fatty acid transport protein; FATP; long chain fatty acid; LCFA; human;
KW fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS Homo sapiens.
XX
PN WO9936537-A2.
XX
PD 22-JUL-1999.
XX
PF 14-JAN-1999; 99WO-US00182.
XX
PR 14-JAN-1999; 99US-0232201.
PR 15-JAN-1998; 98US-0071374.
PR 20-JUL-1998; 98US-0093491.
PR 04-DEC-1998; 98US-0110941.
PR 14-JAN-1999; 99US-0232195.
PR 14-JAN-1999; 99US-0232197.
PR 14-JAN-1999; 99US-0232200.
XX
PA (MILL-) MILLENNIUM PHARM INC.
PA (WHED) WHITEHEAD INST BIOMEDICAL RES.
XX
PI Gimeno RE, Hirsch DJ, Lodish HF, Stahl A, Tartaglia LA;
XX
DR WPI; 1999-444398/37.
DR N-PSDB; AAZ00356.
XX
PT Fatty acid transport proteins and related polynucleotides, useful
PT for treating obesity, diabetes and heart disease
XX
PS Claim 30; Fig 45; 255pp; English.
XX
CC The invention provides a family of fatty acid transport proteins (FATPs)
CC that mediate transport of long chain fatty acids (LCFAs) across cell
CC membranes into cells. Human and murine FATP proteins and nucleic acids
CC encoding the proteins are provided. The FATP proteins can be produced
CC by standard recombinant methodology. Fatty acid uptake by cells can be
CC modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC In particular, antisense oligonucleotides can be used to modulate FATP
CC biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC muscle or liver by administration of a complex of the agent and a FATP6
CC binding moiety. DNA encoding FATP proteins can be used as a reference
CC used in detecting variant alleles or homologues. Altering the LCFA uptake
CC by administering an inhibitor or enhancer of FATP transport function in
CC the small intestine can decrease or increase calories available as fats,
CC and can decrease or increase circulating fatty acids. Blocking the
CC function of FATP4 and also FATP2, is useful for treating obesity,
CC diabetes and heart disease.
XX
SQ Sequence 646 AA;

Query Match 62.6%; Score 2119; DB 20; Length 646;
Best Local Similarity 62.4%; Pred. No. 4e-211;
Matches 398; Conservative 91; Mismatches 147; Indels 2; Gaps 2;

```
Qy      4 GASLVGVLLFSKL-VLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLLKV 62
            ||    |:  : | :| ||||    : | :|:||||||||:|:  || |||:||  ||::|
Db      5 gagaasvvslallwllglpwtwsaaaalgvyvgsggwrflrivcktarrdlfglsvlirv 64

Qy     63 KAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQARG 122
          : ::|:  :   |:| :| : |:| |:: ||:  ||   |||P ||| ||::|||  :  |
Db     65 rlelrrhqraghtiprifqavvqrqperlalvdagtgecwtfaqldaysnavanlfrqlg 124

Qy    123 LASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSE 182
            | ||| |||:| | |||||||||:|| |:||||:| ||||: |  || || |:||:|| |
Db    125 fapgdvvaiflegrpefvglwlglakagmeaallnvnlrreplafclgtsgakalifgge 184

Qy    183 MASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDA-PKHLPSCPDKGFTDKL 241
          | :|: ||   |  ||  ||||   |  : | |  ||||||:|    |   | ||  |:|
Db    185 mvaavaevsghlgkslikfcsgdlgpegilpdthlldpllkeastaplaqipskgmddrl 244

Qy    242 FYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQC 301
          ||||||||||||||||||||||||||||  :: :||:  |::|||||||||||||:|:|||
Db    245 fyiytsgttglpkaaivvhsryyrmaafghhayrmqaadvlydclplyhsagniigvgqc 304

Qy    302 LLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGN 361
          |::|:|||:|||||||||||||||||||:||||||:||||| || |||| :|:||:|:||
Db    305 liygltvvlrkkfsasrfwddcikynctvvqyigeicryllkqpvreaerrhrvrlavgn 364

Qy    362 GLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRV 421
          ||| :||  |: || : |: |||||||||||: | | :||:|||||||| |||||||:|
Db    365 glrpaiweefterfgvrqigefygatecncsianmdgkvgscgfnsrilphvypirlvkv 424

Qy    422 NEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKG 481
          |||||||:|   |:|||| |||| |||:| |:||||||||::: | :|||| || ||
Db    425 nedtmellrdaqglcipcqagepgllvgqinqqdplrrfdgyvsesatskkiahsvfskg 484

Qy    482 DQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEV 541
          | |||:||||||||||:|||||:||||||:|||||||||| |||||   ||||||| |
Db    485 dsaylsgdvlvmdelgymyfrdrsgdtfrwrgenvsttevegvlsrllgqtdvavygvav 544

Qy    542 PGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTEL 601
          || ||:|||||| |    |     | |:| |  |||||||||||::  |||:| ||| |
Db    545 pgvegkagmaavadphslldpnaiyqelqkvlapyarpiflrllpqvdttgtfkiqktrl 604

Qy    602 RKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAG 639
          ::|||||    | ||:|| ::| |:||::  |:|| :|
Db    605 qregfdprqtsdrlffldlkqghylplneavytricsg 642
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RESULT  10
AAY40435
ID   AAY40435 standard; Protein; 646 AA.
XX
AC   AAY40435;
XX
DT   08-FEB-2000  (first entry)
XX
DE   Human FATP protein sequence.
XX
KW   Fatty acid transport protein; FATP; hFATP; cardiomyopathy; diabetes;
KW   long-chain fatty acid metabolism; obesity; human.
XX
OS   Homo sapiens.
XX
PN   WO9951740-A2.
XX
PD   14-OCT-1999.
XX
PF   02-APR-1999;   99WO-EP02295.
XX
PR   06-APR-1998;   98EP-0400823.
XX
PA   (JANC ) JANSSEN PHARM NV.
PA   (UNIW ) UNIV WASHINGTON.
XX
PI   Martin G,  Nemoto M,  Deeb SS,  Auwerx J;
XX
DR   WPI; 1999-620202/53.
DR   N-PSDB; AAZ38122, AAZ38125.
XX
PT   New human fatty acid transport protein, hFATP, useful to screen for
PT   inhibitors or enhancers useful to regulate fatty acid metabolism  -
XX
PS   Claim 1; Fig 5; 83pp; English.
XX
CC   The invention provides a human fatty acid transport protein (hFATP).
CC   hFATP is believed to be involved in the modulation long-chain fatty acid
CC   metabolism; the protein and polynucleotides therefore enable production
CC   of compositions comprising a component regulating (inhibiting or
CC   enhancing) expression of the hFATP gene useful therapeutically to alter
CC   intracellular or blood levels of long chain fatty acids. Such compounds
CC   are especially useful to treat conditions associated with deficient
CC   regulation (e.g. may comprise an inhibitor to treat cardiomyopathies or
CC   diabetes or an enhancer to treat obesity. The polynucleotides are also
CC   useful to screen compounds for their effects on hFATP expression, e.g.
CC   by measuring mRNA transcription in cells/cell extracts (e.g. liver
CC   cells) contacted with the compound and comparing with that in non-
CC   contacted cells. The present sequence represents the hFATP protein.
XX
SQ   Sequence   646 AA;


  Query Match             62.5%;  Score 2114;  DB 20;  Length 646;
  Best Local Similarity   62.2%;  Pred. No. 1.3e-210;
  Matches  397;  Conservative   91;  Mismatches  148;  Indels    2;  Gaps    2;

Qy       4 GASLVGVLLFSKL-VLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLLKV 62
           ||    |:  : | :| ||||    : | :|:||||||:|:  || |||:||  ||::|
Db       5 gagaasvvslallwllglpwtwsaaaalgvyvgsggwrflrivcktarrdlfglsvlirv 64

Qy      63 KAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQARG 122
           : ::|:  :   |:| :| : |:| |:: ||:  ||   ||| ||| ||::|||  :  |
Db      65 rlelrrhqraghtiprifqavvqrqperlalvdagtgecwtfaqldaysnavanlfrqlg 124

Qy     123 LASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSE 182
           | ||| |||:| | ||||||||:|| |:|||||:| |||| | || || |:||:|| |
Db     125 fapgdvvaiflegrpefvglwlglakagmeaallnvnlrreplafclgtsgakalifgge 184

Qy     183 MASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDA-PKHLPSCPDKGFTDKL 241
           | :|: ||   |  ||  ||||   |  : | |  ||||||:|    |   | ||  |:|
Db     185 mvaavaevsghlgkslikfcsgdlgpegilpdthlldpllkeastaplaqipskgmddrl 244

Qy     242 FYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQC 301
           ||||||||||||||||||||||||||||  :: :||:  |::|||||||||||||:|:|||
Db     245 fyiytsgttglpkaaivvhsryyrmaafghhayrmqaadvlydclplyhsagniigvgqc 304

Qy     302 LLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGN 361
           |::|:|||:|||||||||||||||||||:||||||:|||||  || |||| :|:||:|:||
Db     305 liygltvvlrkkfsasrfwddcikynctvvqyigeicryllkqpvreaerrhrvrlavgn 364

Qy     362 GLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRV 421
           ||| :||  |: || : |: |||||||||||: | | :||:|||||||  |||||||:|
Db     365 glrpaiweefterfgvrqigefygatecncsianmdgkvgscgfnsrilphvypirlvkv 424

Qy     422 NEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKG 481
           |||||||:|   |:|||| |||| |||:| |:|||||||||::: | :||||  || ||
Db     425 nedtmellrdaqglcipcqagepgllvgqinqqdplrrfdgyvsesatskkiahsvfskg 484

Qy     482 DQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEV 541
           | |||:|||||||||||:|||||:||||||:||||| ||||| |||||   ||||||| |
Db     485 dsaylsgdvlvmdelgymyfrdrsgdtfrwrgenvsntevegvlsrllgqtdvavygvav 544

Qy     542 PGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTEL 601
           || ||:|||||||  |    |     | |:| |  ||||||||||::  |||:| ||| |
Db     545 pgvegkagmaavadphslldpnaiyqelqkvlapyarpiflrllpqvdttgtfkiqktrl 604

Qy     602 RKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAG 639
           ::|||||    | ||:|| ::| |:||::  |:|| :|
Db     605 qregfdprqtsdrlffldlkqghylplneavytricsg 642


RESULT  11
AAY40436
ID   AAY40436 standard; Protein; 646 AA.
XX
AC   AAY40436;
XX
DT   08-FEB-2000  (first entry)
XX
DE   Human FATP1 protein sequence.
XX
KW   Fatty acid transport protein; FATP; hFATP1; cardiomyopathy; diabetes;
KW   long-chain fatty acid metabolism; obesity; human.
XX
OS   Homo sapiens.
XX
PN   WO9951740-A2.
XX
PD   14-OCT-1999.
XX
PF   02-APR-1999;   99WO-EP02295.
XX
PR   06-APR-1998;   98EP-0400823.
XX
PA   (JANC ) JANSSEN PHARM NV.
PA   (UNIW ) UNIV WASHINGTON.
XX
PI   Martin G,  Nemoto M,  Deeb SS,  Auwerx J;
XX
DR   WPI; 1999-620202/53.
XX
PT   New human fatty acid transport protein, hFATP, useful to screen for
PT   inhibitors or enhancers useful to regulate fatty acid metabolism  -
XX
PS   Claim 1; Fig 2; 83pp; English.
XX
CC   The invention provides a human fatty acid transport protein (hFATP).
CC   hFATP is believed to be involved in the modulation long-chain fatty acid
CC   metabolism; the protein and polynucleotides therefore enable production
CC   of compositions comprising a component regulating (inhibiting or
CC   enhancing) expression of the hFATP gene useful therapeutically to alter
CC   intracellular or blood levels of long chain fatty acids. Such compounds
CC   are especially useful to treat conditions associated with deficient
CC   regulation (e.g. may comprise an inhibitor to treat cardiomyopathies or
CC   diabetes or an enhancer to treat obesity. The polynucleotides are also
```

CC useful to screen compounds for their effects on hFATP expression, e.g.
CC by measuring mRNA transcription in cells/cell extracts (e.g. liver
CC cells) contacted with the compound and comparing with that in non-
CC contacted cells. The present sequence represents the hFATP1 protein.
XX
SQ Sequence 646 AA;

Query Match 62.5%; Score 2114; DB 20; Length 646;
Best Local Similarity 62.2%; Pred. No. 1.3e-210;
Matches 397; Conservative 91; Mismatches 148; Indels 2; Gaps 2;

```
Qy      4 GASLVGVLLFSKL-VLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLLKV 62
          ||    |:  : | :| ||||    : | :|:||||||||:|:  || |||:||  ||::|
Db      5 gagaasvvslallwllglpwtwsaaaalgvyvgsggwrflrivcktarrdlfglsvlirv 64

Qy     63 KAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQARG 122
          : ::|:  :   |:| :| : :|:| |:: ||:  ||   ||| ||| ||::|||  :  |
Db     65 rlelrrhqragntiprifqavvqrqperlalvdagtgecwtfaqldaysnavanlfrqlg 124

Qy    123 LASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSE 182
           | ||| |||:| | ||||||||:|| |:||||:| ||||: |  || || |:|||:|| |
Db    125 fapgdvvaiflegrpefvglwlglakagmeaallnvnlrreplafclgtsgakalifgge 184

Qy    183 MASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDA-PKHLPSCPDKGFTDKL 241
          | :|: ||   |  ||  ||||   |  : | |  ||||||:|    |   | ||  |:|
Db    185 mvaavaevsghlgkslikfcsgdlgpegilpdthlldpllkeastaplaqipskgmddrl 244

Qy    242 FYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQC 301
          ||||||||||||||||||||||||||  :: :||:  |::|||||||||||||:|:|||
Db    245 fyiytsgttglpkaaivvhsryyrmaafghhayrmqaadvlydclplyhsagniigvgqc 304

Qy    302 LLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGN 361
          |::|:|||:|||||||||||||||||:||||||:|||| || |||| :|:||:|:||
Db    305 liygltvvlrkkfsasrfwddcikynctvvqyigeicryllkqpvreaerrhrvrlavgn 364

Qy    362 GLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRV 421
          ||| :||  |: || : |: ||||||||||: | | :||:|||||||  |||||||:|
Db    365 glrpaiweefterfgvrqigefygatecncsianmdgkvgscgfnsrilphvypirlvkv 424

Qy    422 NEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKG 481
          |||||||:|   |:|||| |||| |||:| |:|||||||||::: | :||||  || ||
Db    425 nedtmellrdaqglcipcqagepgllvgqinqqdplrrfdgyvsesatskkiahsvfskg 484

Qy    482 DQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEV 541
          | |||:|||||||||||:|||||:|||||:|||| ||||| |||||   ||||||| |
Db    485 dsaylsgdvlvmdelgymyfrdrsgdtfrwrgenvsntevegvlsrllgqtdvavygvav 544

Qy    542 PGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTEL 601
          || ||:|||||| |    |     | |:| |  |||||||||||::  |||:| ||| |
Db    545 pgvegkagmaavadphslldpnaiyqelqkvlapyarpiflrllpqvdttgtfkiqktrl 604

Qy    602 RKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAG 639
          ::|||||    | ||:|| ::| |:||::  |:|| :|
Db    605 qregfdprqtsdrlffldlkqghylplmeavytricsg 642
```

RESULT 12
AAY14952
ID AAY14952 standard; protein; 646 AA.
XX
AC AAY14952;
XX
DT 26-OCT-1999 (first entry)
XX
DE Amino acid sequence of rat rnFATP1.
XX
KW Fatty acid transport protein; FATP; long chain fatty acid; LCFA;
KW fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS Rattus norvegicus.
XX
PN WO9936537-A2.

XX
PD 22-JUL-1999.
XX
PF 14-JAN-1999; 99WO-US00182.
XX
PR 14-JAN-1999; 99US-0232201.
PR 15-JAN-1998; 98US-0071374.
PR 20-JUL-1998; 98US-0093491.
PR 04-DEC-1998; 98US-0110941.
PR 14-JAN-1999; 99US-0232195.
PR 14-JAN-1999; 99US-0232197.
PR 14-JAN-1999; 99US-0232200.
XX
PA (MILL-) MILLENNIUM PHARM INC.
PA (WHED) WHITEHEAD INST BIOMEDICAL RES.
XX
PI Gimeno RE, Hirsch DJ, Lodish HF, Stahl A, Tartaglia LA;
XX
DR WPI; 1999-444398/37.
DR N-PSDB; AAZ00362.
XX
PT Fatty acid transport proteins and related polynucleotides, useful
PT for treating obesity, diabetes and heart disease
XX
PS Disclosure; Fig 57; 255pp; English.
XX
CC The invention provides a family of fatty acid transport proteins (FATPs)
CC that mediate transport of long chain fatty acids (LCFAs) across cell
CC membranes into cells. Human and murine FATP proteins and nucleic acids
CC encoding the proteins are provided. The FATP proteins can be produced
CC by standard recombinant methodology. Fatty acid uptake by cells can be
CC modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC In particular, antisense oligonucleotides can be used to modulate FATP
CC biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC muscle or liver by administration of a complex of the agent and a FATP6
CC binding moiety. DNA encoding FATP proteins can be used as a reference
CC used in detecting variant alleles or homologues. Altering the LCFA uptake
CC by administering an inhibitor or enhancer of FATP transport function in
CC the small intestine can decrease or increase calories available as fats,
CC and can decrease or increase circulating fatty acids. Blocking the
CC function of FATP4 and also FATP2, is useful for treating obesity,
CC diabetes and heart disease.
XX
SQ Sequence 646 AA;

Query Match 61.7%; Score 2087; DB 20; Length 646;
Best Local Similarity 60.4%; Pred. No. 8.5e-208;
Matches 388; Conservative 98; Mismatches 154; Indels 2; Gaps 2;

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Qy      4 GASLVGVLLFSKL-VLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLLKV 62
          ||    |     | :| ||||    :   :|:|||||||:|:  || |||:||  ||::|
Db      5 gagtasvaslgllwllglpwtwsaaaafgvyvgsggwrflrivcktarrdlfglsvlirv 64

Qy     63 KAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQARG 122
          : ::|:  :   |:| :| :  :| |:: ||:   :   ||| ||| ||::|||     |
Db     65 rlelrrhrragdtiprifqavaqrqperlalvdassgicwtfaqldtysnavanlflqlg 124

Qy    123 LASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSE 182
           | ||| |:|:| | ||||||||:|| || |||:| ||||: |  || || |:||::|  |
Db    125 fapgdvvavflegrpefvglwlglakagvvaallnvnlrreplafclgtsaakaliygge 184

Qy    183 MASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAP-KHLPSCPDKGFTDKL 241
          ||:|: ||   |  ||  ||||   | :| | |: |||:| :||   |   | ||  |:|
Db    185 maaavaevseqlgksllkfcsgdlgpesvlpdtqlldpmlaeapttplaqapgkgmddrl 244

Qy    242 FYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQC 301
          ||||||||||||||||||||||||:||  :: : || ||::|||||||||||:|:|||
Db    245 fyiytsgttglpkaaivvhsryyriaafghhsysmrandvlydclplyhsagnimgvgqc 304

Qy    302 LLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGN 361
          :::|:|||:|||||||||||||:|||||:||||| || |: | :|:||:|:||
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Db    305 iiygltvvlrkkfsasrfwddcvkynctvvqyigeicryllrqpvrdverrhrvrlavgn 364

Qy    362 GLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRV 421
          ||| :|| |: | : |: |||||||||||: | | :||:|||||||||: |||||||:|
Db    365 glrpaiweeftqgfgvrqigefygatecncsianmdgkvgscgfnsrilthvypirlvkv 424

Qy    422 NEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKG 481
          |||||| :|   |:|||||||||| |||:| |:|||||||||::  | ||||  ||:||
Db    425 nedtmeplrdsqglcipcqpgepgllvgqinqqdplrrfdgyvsdsatnkkiahsvfrkg 484

Qy    482 DQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEV 541
          | |||:|||||||||||:|||||:||||||:|||||||||  |||||   ||||||| |
Db    485 dsaylsgdvlvmdelgymyfrdrsgdtfrwrgenvstteveavlsrllgqtdvavygvav 544

Qy    542 PGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTEL 601
          || ||::||||:| |    |     | |:| |  ||:|||||||||::  |||:| ||| |
Db    545 pgvegksgmaaiadphnqldpnsmyqelqkvlasyaqpiflrllpqvdttgtfkiqktrl 604

Qy    602 RKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
          ::|||||    | ||:|| ::|||:|||:  ::|| ||:  |
Db    605 qregfdprqtsdrlffldlkqgrylpldervharicagdfsl 646


RESULT  13
AAY14955
ID   AAY14955 standard; protein; 647 AA.
XX
AC   AAY14955;
XX
DT   26-OCT-1999  (first entry)
XX
DE   Amino acid sequence of murine mmFATP1.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA; murine;
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Mus sp.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00365.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Example 1; Fig 63; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   647 AA;


  Query Match             61.5%;  Score 2080.5;  DB 20;  Length 647;
  Best Local Similarity   60.3%;  Pred. No. 4.1e-207;
  Matches  388;  Conservative   97;  Mismatches  155;  Indels    3;  Gaps    3;

Qy      4 GASLVGVLLFSKL-VLKLPWTQVGFSLLFLYLGSGGWRFIRVFIKTIRRDIFGGLVLLKV 62
            ||    |   : |  | ||||    :   :|:| |||||:|:  || |||:||  ||::|
Db      5 gagtasvaslallwflglpwtwsaaaafcvyvggggwrflrivcktarrdlfglsvlirv 64

Qy     63 KAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGTDTHWTFRQLDEYSSSVANFLQARG 122
          : ::|:  :   |:| :| :  || |:: ||:   :   ||| ||| ||::|||  :  |
Db     65 rlelrrhrragdtipcifqavarrqperlalvdassgicwtfaqldtysnavanlfrqlg 124

Qy    123 LASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINTNLRRDALLHCLTTSRARALVFGSE 182
          | ||| |:|:| | |||||||||:|| || |||:| ||||: |  || || |:||::| |
Db    125 fapgdvvavflegrpefvglwlglakagvvaallnvnlrreplafclgtsaakaliygge 184

Qy    183 MASAICEVHASLDPSLSLFCSGSWEPGAVPPSTEHLDPLLKDAP-KHLPSCPDKGFTDKL 241
          ||:|: ||   |  ||  ||||   | :: | |: |||:| :||   |   | ||  |:|
Db    185 maaavaevseqlgksllkfcsgdlgpesilpdtqlldpmlaeapttplaqapgkgmddrl 244

Qy    242 FYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGIGQC 301
          |||||||||||||||||||||||:||  :: : ||  |::|||||||||||||:|:|||
Db    245 fyiytsgttglpkaaivvhsryyriaafghhsysmraadvlydclplyhsagnimgvgqc 304

Qy    302 LLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMALGN 361
          :::|:|||:|||||||||||||:|||||:|  |||:||||| || |: | :|:||:|:||
Db    305 viygltvvlrkkfsasrfwddcvkynctvvddigeicryllrqpvrdveqrhrvrlavgn 364

Qy    362 GLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRLVRV 421
          ||| :||  |: || :||: ||||||||||: | | :||:|||||||||: |||||||:|
Db    365 glrpaiweeftqrfgvpqigefygatecncsianmdgkvgscgfnsrilthvypirlvkv 424

Qy    422 NEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVFKKG 481
          |||||| :|  :|:|||||||||| |||:| |:|||||||||::  | ||||  ||:||
Db    425 nedtmeplrdseglcipcqpgepgllvgqinqqdplrrfdgyvsdsatnkkiahsvfrkg 484

Qy    482 DQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYGVEV 541
          | |||:|||||||||||:|||||:||||||:|||||||||  |||||   ||||||| |
Db    485 dsaylsgdvlvmdelgymyfrdrsgdtfrwrgenvstteveavlsrllgqtdvavygvav 544

Qy    542 PGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQKTEL 601
          || ||:|||||:| |    |     | |:| |  ||||||||||::  |||:| ||| |
Db    545 pgvegkagmaaiadphsqldpnsmyqelqkvlasyarpiflrllpqvdttgtfkiqktrl 604

Qy    602 RKEGFDPAIVKDPLFYLDAQKG-RYVPLDQEAYSRIQAGEEKL 643
          ::|||||    | ||:|| : | ||:|||:  ::|| ||:  |
Db    605 qregfdprqtsdrlffldlksgtrylpldervharicagdfsl 647


RESULT  14
AAY14954
ID   AAY14954 standard; protein; 405 AA.
XX
AC   AAY14954;
XX
DT   26-OCT-1999  (first entry)
XX
DE   Amino acid sequence of rat rnFATP4.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA;
```

```
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Rattus norvegicus.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00364.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Disclosure; Fig 61; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   405 AA;
```

```
  Query Match             60.2%;  Score 2036;  DB 20;  Length 405;
  Best Local Similarity   93.6%;  Pred. No. 8e-203;
  Matches  379;  Conservative   16;  Mismatches   10;  Indels    0;  Gaps    0;

Qy    239 DKLFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGFRMRPNDIVYDCLPLYHSAGNIVGI 298
          |:||||||||||||||||||||||||||||||||||||||:||||||||||||||||||
Db      1 dqlfyiytsgttglpkaaivvhsryyrmaalvyygfrmrpddivydclplyhsagnivgi 60

Qy    299 GQCLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYIGELCRYLLNQPPREAENQHQVRMA 358
          |||:||||||||||||||||||||||||||||||||||||||||||||||::|:||||
Db     61 gqcvlhgmtvvirkkfsasrfwddcikynctivqyigelcryllnqppreaesrhkvrma 120

Qy    359 LGNGLRQSIWTNFSSRFHIPQVAEFYGATECNCSLGNFDSQVGACGFNSRILSFVYPIRL 418
          ||||||||||:||||||||:||||||||||||||||||||||||||||||||||||||
Db    121 lgnglrqsiwtdfssrfhipkvaefygatecncslgnfdsqvgacgfnsrilsfvypirl 180

Qy    419 VRVNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQKDPLRRFDGYLNQGANNKKIAKDVF 478
          ||||||||||||||||||||:||||||||||:||||||||||||||||||||| |||
Db    181 vrvnedtmelirgpdgvcipcqpgqpgqlvgriiqqdplrrfdgylnqgannkkiasdvf 240

Qy    479 KKGDQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGENVSTTEVEGTLSRLLDMADVAVYG 538
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    241 kkgdqayltgdvlvmdelgylyfrdrtgdtfrwkgenvsttevegtlsrllqmadvavyg 300

Qy    539 VEVPGTEGRAGMAAVASPTGNCDLERFAQVLEKELPLYARPIFLRLLPELHKTGTYKFQK 598
          ||||| |||||||||||||| ||||| ||| |:||||||||||||| ||||||||:||||
Db    301 vevpgaegragmaavasptsncdlesfaqtlkkelplyarpiflrflpelhktgtfkfqk 360

Qy    599 TELRKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYSRIQAGEEKL 643
          ||||||||||::||||||||||: | || ||||||:|||||||||
Db    361 telrkegfdpsvvkdplfyldartgcyvaldqeaytriqageekl 405


RESULT  15
AAY14960
ID   AAY14960 standard; protein; 590 AA.
XX
AC   AAY14960;
XX
DT   26-OCT-1999  (first entry)
XX
DE   Partial amino acid sequence of drosophila dmFATP.
XX
KW   Fatty acid transport protein; FATP; long chain fatty acid; LCFA;
KW   fatty acid; FATP biosynthesis; obesity; diabetes; heart disease.
XX
OS   Drosophila melanogaster.
XX
PN   WO9936537-A2.
XX
PD   22-JUL-1999.
XX
PF   14-JAN-1999;   99WO-US00182.
XX
PR   14-JAN-1999;   99US-0232201.
PR   15-JAN-1998;   98US-0071374.
PR   20-JUL-1998;   98US-0093491.
PR   04-DEC-1998;   98US-0110941.
PR   14-JAN-1999;   99US-0232195.
PR   14-JAN-1999;   99US-0232197.
PR   14-JAN-1999;   99US-0232200.
XX
PA   (MILL-) MILLENNIUM PHARM INC.
PA   (WHED ) WHITEHEAD INST BIOMEDICAL RES.
XX
PI   Gimeno RE,  Hirsch DJ,  Lodish HF,  Stahl A,  Tartaglia LA;
XX
DR   WPI; 1999-444398/37.
DR   N-PSDB; AAZ00370.
XX
PT   Fatty acid transport proteins and related polynucleotides, useful
PT   for treating obesity, diabetes and heart disease
XX
PS   Disclosure; Fig 73; 255pp; English.
XX
CC   The invention provides a family of fatty acid transport proteins (FATPs)
CC   that mediate transport of long chain fatty acids (LCFAs) across cell
CC   membranes into cells. Human and murine FATP proteins and nucleic acids
CC   encoding the proteins are provided. The FATP proteins can be produced
CC   by standard recombinant methodology. Fatty acid uptake by cells can be
CC   modulated by modulating biosynthesis of FATP proteins especially FATP6.
CC   In particular, antisense oligonucleotides can be used to modulate FATP
CC   biosynthesis. Modulation of FATP6 is useful for inhibiting fatty acid
CC   uptake in cardiac muscle of humans. Agents can be directed to cardiac
CC   muscle or liver by administration of a complex of the agent and a FATP6
CC   binding moiety. DNA encoding FATP proteins can be used as a reference
CC   used in detecting variant alleles or homologues. Altering the LCFA uptake
CC   by administering an inhibitor or enhancer of FATP transport function in
CC   the small intestine can decrease or increase calories available as fats,
CC   and can decrease or increase circulating fatty acids. Blocking the
CC   function of FATP4 and also FATP2, is useful for treating obesity,
CC   diabetes and heart disease.
XX
SQ   Sequence   590 AA;
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Query Match 42.6%; Score 1441.5; DB 20; Length 590;
Best Local Similarity 47.7%; Pred. No. 1e-140;
Matches 289; Conservative 99; Mismatches 193; Indels 25; Gaps 4;

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Qy      39 WRFIRVFIKTIRRDIFGGLVLLKVKAKVRQCLQERRTVPILFASTVRRHPDKTALIFEGT 98
           | :|::   | | :                  :   ||  :|   |: |||| |:: |
Db       3 wayikllrytkrhe-----------------rlnytvadvfernvqahpdkvavvse-- 42

Qy      99 DTHWTFRQLDEYSSSVANFLQARGLASGDVAAIFMENRNEFVGLWLGMAKLGVEAALINT 158
              |||||::|::: ||| |||:|   ||| |: :||| |:|  |||::|:||   ||||
Db      43 tqrwtfrqvnehankvanvlqaqgykkgdvvalllenraeyvatwlglskigvitplint 102

Qy     159 NLRRDALLHCLTTSRARALVFGSEMASAICEVHASLDPSLSLFC----SGSWEPGAVPPS 214
           |||  :||| :| :   ||::| :   |: :|   |  :|:||     : : |     |
Db     103 nlrgpsllhsitvahcsaliygedfleavtdvakdlpanltlfqfnnennnseteknipq 162

Qy     215 TEHLDPLLKDAPKHLPSCPDKGFTDKLFYIYTSGTTGLPKAAIVVHSRYYRMAALVYYGF 274
           ::|: ||  |    |:       ||| ||||||||||||:: |||| :|| ::|
Db     163 aknlnallttasyekpnktqvnhhdklvyiytsgttglpkaavishsrylfiaagihytm 222

Qy     275 RMRPNDIVYDCLPLYHSAGNIVGIGQCLLHGMTVVIRKKFSASRFWDDCIKYNCTIVQYI 334
             :  || |  |||||:|| |: :|| :| | || |||||||| :: || ||| || |||
Db     223 gfqeedifytplplyhtaggimcmgqsvlfgstvsirkkfsasnyfadcakynatigqyi 282

Qy     335 GELCRYLLNQPPREAENQHQVRMALGNGLRQSIWTNFSSRFHIPQVAEFYGATECNCSLG 394
           ||: ||:|   | | : :|:||:  |||||  ||  |  ||:| :| |||||| | ::
Db     283 gemaryilatkpseydqkhrvrlvfgnglrpqiwpqfvqrfniakvgefygategnanim 342

Qy     395 NFDSQVGACGFNSRILSFVYPIRLVRVNEDTMELIRGPDGVCIPCQPGEPGQLVGRIIQK 454
           | |: ||| || ||||  :||| ::| : || | ||  :|:|  | | |||  :|:|::
Db     343 nhdntvgaigfvsrilpkiypisiiradpdtgepirdrnglcqlcapnepgvfigkivkg 402

Qy     455 DPLRRFDGYLNQGANNKKIAKDVFKKGDQAYLTGDVLVMDELGYLYFRDRTGDTFRWKGE 514
           :| | | ||::: |: ||| ||||| || |:::||:|| || |||||:|||||||||||
Db     403 npsreflgyvdekasakkivkdvfkhgdmafisgdllvadekgylyfkdrtgdtfrwkge 462

Qy     515 NVSTTEVEGTLSRLLDMADVAVYGVEVPGTEGRAGMAAVASPTGNCDLERFAQVLEKELP 574
           ||||:|||  :| :   |  |||| :| |||||||||:  |   ||: || | | ||
Db     463 nvstseveaqvsnvagykdtvvygvtiphtegragmaaiydpereldldvfaaslakvlp 522

Qy     575 LYARPIFLRLLPELHKTGTYKFQKTELRKEGFDPAIVKDPLFYLDAQKGRYVPLDQEAYS 634
           ||||  :||| ::  |||:| :| :|:|||:||  :|| |:|    ||||  |  : |
Db     523 ayarpqiirlltkvdltgtfklrkvdlqkegydpnaikdalyy-qtskgryelltpqvyd 581

Qy     635 RIQAGE 640
           ::|  |
Db     582 qvqrne 587
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Search completed: July 16, 2001, 18:12:49
Job time: 129 sec